Reg. No.										

GIET UNIVERSITY, GUNUPUR – 765022

B. Sc. (Ag.) (First Semester) Regular Examinations, January – 2024

PP-111 – Fundamentals of Crop Physiology

Time: 2 hrs Maximum: 50 Marks

The figures in the right-hand margin indicate marks.

PART – A

Q.1. Fill in the blanks with suitable word / figure. **(0.5 x 10 = 5 Marks)**

a. …….. occupies around 30% (maximum) of the cell's volume in a mature plant cell.
b. The force of attraction between molecules of water is called ……
c. ……..transpiration may contribute a maximum of about 10% of the total transpiration.
d. Total …….element are macronutrients, whose concentrations is > 0.1 mg/gm of dry matter.
e. Senescence can be postponed to several days by ……..hormone treatment.
f. In respond to temperature stress, stomatal closing is caused by the effect of ……
g. Animals tend to store triglycerides as ……. in solid form at room temperature.
h. In β-oxidation, …… ATPs are produced by complete oxidation of palmitic acid.
i. SLA stands for ……
j. During ……growth phase, cell matures and gets differentiated into permanent tissue.

Q. 2. Define (or) Explain the following in one or two sentences. **(1 x 5 = 5 Marks)**

a. Root pressure
b. Dark Reaction
c. Plant hormones
d. Unsaturated fatty acids
e. Link Rection

Q3. Match the following **(0.5 x 10 = 5 Marks)**

Column – A			Column – B	
(a)	End-osmosis		(i)	Potassium
(b)	*Symplastic pathway*		(ii)	^{32}P
(c)	Heart rot of beet		(iii)	Photosynthetic pigments
(d)	Stomatal closing		(iv)	Plasmodesmata
(e)	Radioactive element		(v)	Auxin
(f)	Chlorophylls		(vi)	Boron
(g)	NAA		(vii)	Water move-in
(h)	Derived Lipids		(viii)	Terpenes
(i)	Kreb's cycle		(ix)	Permanent
(j)	Growth		(x)	Catabolic

Q4. Write True or False against each statement **(0.5 x 10 = 5 Marks)**

a. Golgi apparatus are the sites for protein synthesis, also referred to as the protein factories of the cell.
b. The rate of diffusion of gases is faster than liquids or solutes.
c. Beyond cortex apoplastic pathway is blocked by casparian strip present in the endodermis.
d. The process of guttation takes place due, to the root pressure, developed in cortex cells of root.
e. *Fe, Ca, Mg, Mn, etc.* are indispensable for plant growth are also called 'framework elements'.
f. Donnan's equilibrium allow pre-existing ions inside the cell, cannot diffuse outside called fixed ions.
g. Photolysis of water occurs in light reaction.
h. The dormancy of buds can be broken by gibberellin treatments.
i. The Krebs cycle is also commonly referred to as the citric acid cycle.
j. The common and simplest method for the measurement is by use of auxanometers.

PART – B

Attempt *ANY FIVE* questions. All question carries equal marks **(6 x 5 = 30 Marks)**

5. What do you mean by water potential? Describe passive absorption of water in plants?
6. What are macronutrients? List out the three functions of nitrogen and magnesium in plants?
7. Name the photosynthetic pigments in plants? How they fix CO_2 in C_3 cycle?
8. Give names of all growth promoting hormones and list out three functions of each?
9. Explain and name the two phases of glycolysis in details for energy production?
10. Define growth and growth indices? Explain the "S" growth curve in a plant?

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